

## CLAIMS

What is claimed is:

1. An apparatus for monitoring wear of a connector having first and second parts, the apparatus comprising:
  - 5 a sensor sensing an insertion or extraction of the first part of the connector with the second part of the connector, the insertions or extractions being associated with wear of the connector; and a monitor responsive to the sensor to monitor the wear of the connector.
- 10 2. The apparatus according to Claim 1 wherein the sensor includes contact or non-contact sensor elements to sense insertions or extractions.
- 15 3. The apparatus according to Claim 1 wherein the sensor includes sensing electronics to sense insertions or extractions, the sensing electronics being independent of electronics associated with signals communicated through the connector.
- 20 4. The apparatus according to Claim 3 wherein the sensing electronics further determines a metric associated with the performance of the connector to estimate the wear of the connector.
- 25 5. The apparatus according to Claim 1 wherein the monitor is coupled to the sensor via a network.
6. The apparatus according to Claim 1 wherein the monitor includes:
  - a processor to process signals received from the sensor; and
  - memory coupled to the processor to store data related to the processed signals.

7. The apparatus according to Claim 6 wherein the processor counts the insertion and extraction cycles.

5 8. The apparatus according to Claim 6 wherein the memory is non-volatile memory.

9. The apparatus according to Claim 6 wherein the processor generates an alarm signal.

10 10. The apparatus according to Claim 1 (i) wherein the sensor and monitor are deployed on a first circuit board, (ii) wherein the sensor and monitor are deployed on a second circuit board interconnecting to the first circuit board, (iii) wherein the sensor and monitor are deployed on at least one of the parts of the connector, or (iv) wherein the sensor is deployed on the first circuit board and the monitor is deployed on the second circuit board coupled to the first circuit board directly, indirectly, or via a network.

15

11. A method for monitoring wear of a connector having first and second parts, the method comprising:

20       sensing insertions or extractions of the first part of the connector with the second part of the connector, the insertions or extractions being associated with the wear of the connector; and

            monitoring the wear of the connector based on the sensing.

25 12. The method according to Claim 11 wherein sensing the insertions or extractions includes sensing via contact or non-contact techniques.

13. The method according to Claim 11 wherein sensing the insertions or extractions is independent of signals communicated through the connector.

14. The method according to Claim 13 further including determining a metric associated with the performance of the connector to estimate the wear of the connector.
- 5      15. The method according to Claim 11 wherein the monitoring is associated with the sensing via a network.
- 10     16. The method according to Claim 11 wherein the monitoring includes:  
          processing signals associated with the sensing; and  
          storing data related to the processed signals.
17. The method according to Claim 16 wherein the processing includes counting the insertions or extractions.
- 15    18. The method according to Claim 16 wherein the data is stored in a non-volatile manner.
19. The method according to Claim 16 wherein the processing includes generating an alarm signal.
- 20     20. The method according to Claim 11 (i) wherein the steps of sensing and monitoring occur on a first circuit board, (ii) wherein the steps of sensing and monitoring occur on a second circuit board interconnecting to the first circuit board, (iii) wherein the steps of sensing and monitoring occur on at least one of the parts of the connector, or (iv) wherein the sensing occurs on the first circuit board and the monitoring occurs on the second circuit board coupled to the first circuit board directly, indirectly, or via a network.
- 25     21. An apparatus for monitoring wear of a connector including first and second parts, the apparatus comprising:
- 30

means for sensing insertions or extractions of the first part of the connector with the second part of the connector, the insertions or extractions being associated with the wear of the connector; and

means for monitoring the wear of the connector based on the sensing.

5

22. A system, comprising:

- a connector including a first part and a second part;
- a sensor coupled to at least one of the parts of the connector and sensing an insertion or extraction of the first part of the connector with the second part of the connector, the insertions or extractions being associated with wear of the connector; and
- 10 a monitor coupled to at least one of the parts of the connector and to the sensor to track the wear of the connector.